



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,109	08/10/2006	Maurits M.N. Storms	NL040142 US	6039
65913	7550	07/29/2008	EXAMINER	
NXP, B.V. NXP INTELLECTUAL PROPERTY DEPARTMENT M/S41-SJ 1109 MCKAY DRIVE SAN JOSE, CA 95131			COLE, BRANDON S	
			ART UNIT	PAPER NUMBER
			2816	
			NOTIFICATION DATE	DELIVERY MODE
			07/29/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

Office Action Summary

Application No.

10/589,109

Applicant(s)

STORMS ET AL.

Examiner

BRANDON S. COLE

Art Unit

2816

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on May 14th 2008.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-14 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on August 10th 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date 8/10/2006
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
5) ☐ Notice of Inventor's Patent Application
6) ☐ Other: _____

DETAILED ACTION

1. Applicant's amendment filed on 5/14/2008 has been entered in the case. After further consideration a new interpretation is now relied upon by the examiner to reject the claims. Therefore, this action is non-final.

Specification

2. The disclosure is objected to because of the following informalities: The specification does not teach that during a high voltage operation, there is a substantially zero voltage drop across said relatively lower breakdown voltage driver.

Appropriate correction is required.

Claim Objections

3. Claim 1 and 6 are objected to because of the following informalities: The claims recite that during a high voltage operation, there is a substantially zero voltage drop across said relatively lower breakdown voltage driver, but the specification fails to teach this limitation. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:
The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 1 recites that "...during a high voltage operation, there is a substantially zero voltage drop across said relatively lower breakdown voltage driver" but this limitation is not taught in the specification. Claims 2 – 5 and 12 - 14 depend on claim 1 and therefore they are also rejected.

Claim 6 recites that "...during a high voltage operation, there is a substantially zero voltage drop across said relatively lower breakdown voltage driver." but the limitation is not taught in the specification. Claims 7-11 depend on claim 6 therefore they are also rejected.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 – 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Mentze et al (US 7,030,654).

As to claim 1, Mentze et al figure 1 shows a voltage driver circuit for driving a device at a selected one of a plurality of voltages (High or Low) associated with respective device operations including a high voltage operation (102) and a relatively lower voltage operation (104), the driver circuit comprising an input (Input Signal), a single output (Output Signal) for connection to said device, and a plurality of voltage drivers (102 and 104) between said input and said output including at least one high voltage breakdown driver (102) and at least one relatively lower breakdown voltage driver (104) the circuit being arranged such that, and, during a relatively lower voltage operation, said relatively lower breakdown voltage driver -provides the drive voltage for driving said device, the contribution of said high breakdown voltage driver to said drive voltage during said relatively lower voltage operation being substantially negligible.

As to the limitation "... during a high voltage operation, said high voltage breakdown driver-is connected to said output and there is a substantially zero voltage drop across said relatively lower breakdown voltage driver " note the above rejection under 35 USC 112 regarding the lack of support/enabement of this limitation. In view of the above-noted deficiency this limitation cannot be relied upon to distinguish over Mentze et al

As to claim 2, Mentze et al figure 1 shows a circuit according claim 1, wherein the high voltage breakdown driver(s) comprise of an inverter consisting of high voltage breakdown transistors. Mentze et al teaches in column 2, lines 9 – 10 that the high voltage buffer stage comprises of an inverter. It is obvious to someone having ordinary

skill in the art that an inverter is made of two transistors (Wikipedia – Inverter (Logic Gate)) and it would be obvious that the transistors are designated to handle a high voltage because in the reference they are attached to a high voltage.

As to claim 3, Mentze et al figure 2 shows a circuit according to claim 1, wherein the at least one relatively lower breakdown voltage driver comprises of an inverter consisting of relatively lower breakdown voltage transistors (220, 222). It is obvious to someone having ordinary skill in the art that an inverter is made of two transistors (Wikipedia – Inverter Logic Gate) and it would be obvious that the transistors are designated to handle a low voltage because in the reference they are attached to a low voltage.

As to claim 4, Mentze et al figure 1 shows a circuit according to claim 1 comprising two signal paths between the input and the output, a first signal path consisting of one or more high voltage drivers (102) connected in series, and a second signal path consisting of at least one low voltage driver (104), the first and second signal paths being connected in parallel to one another.

As to claim 5, Mentze et al figure 1 shows a circuit according to claim 1 comprising a means for selecting the first signal path during high voltage operation. Mentze et al teaches column 3, lines 24 – 27 that input signal resides between two logic

levels (Wikipedia - Clock Signal) so that when the logic level is high the first signal path is selected.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 6, 7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mentze et al (US 7,030,654) in view of Parkinson (US 5,889,415).

As to claim 6, Mentze et al figure 1 shows a voltage driver circuit for driving a device at a selected one of a plurality of voltages associated with respective device operations including a high voltage operation (102) and a relatively lower voltage operation (103), the driver circuit comprising an input (Input Signal), a single output (Output Signal) for connection to said device, and a plurality of voltage drivers (102 and 104) between said input and said output including at least one high voltage breakdown driver (102) and at least one relatively lower breakdown voltage driver (104), the high breakdown voltage driver comprising a voltage level shifter (208, 210, 212, and 214 of figure 2) which is connected at the input of the circuit between first and second voltage lines (VddH and Ground of figure 2), the output of said level shifter is the output of the high voltage breakdown driver, and the lower breakdown voltage driver is connected to the said first and second voltage lines (VddH and Ground of figure 2). Mentze et al teaches about the level shifter in column 4, lines 35 – 57.

As to the limitation "... during a high voltage operation, said high voltage breakdown driver-is connected to said output and there is a substantially zero voltage drop across said relatively lower breakdown voltage driver " note the above rejection under 35 USC 112 regarding the lack of support/enabement of this limitation. In view of the above-noted deficiency this limitation cannot be relied upon to distinguish over Mentze et al

Mentze et al fails to show that the output of high voltage breakdown driver is connected to the input of a relatively lower breakdown voltage.

However, Parkinson figure 1 shows at high voltage operation (114) with its output (112) being the input of a relatively lower voltage operation (116). Parkinson teaches column 1, lines 20 - 23 that the driver uses a mixed voltage supply and that Vcc2 is the lower voltage

Therefore it would have been obvious to one having ordinary skill in the art, at the time of the invention, connect Mentze et al's high voltage operation to its relatively lower voltage operation just like how Parkinson's high voltage operation is connected to its relatively lower voltage operation, with the output of the high voltage operation being the input of a relatively lower voltage operation, for purpose of the not having the high voltage device damage the low voltage device.

As to claim 7, Mentze et al figure 2 shows that the voltage level shifter comprises of a partial level shifter (208, 210, 212, and 214). The level shifter is partial because it only connects to VddH and VddL, it cannot support the full voltage drop of VDDH to Ground.

As to claim 11, Mentze et al figure 2 shows a high voltage pull-up transistor (208) that is provided between the first voltage line (VddH)

7. Claims 8 -10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mentze et al (US 7,030,654) as modified by Parkinson (US 5,889,415) and applied to claim 6 above, and in further view of Chen et al (US 7,193,441).

As to claims 8 and 9, Mentze et al figure 2 further shows a relatively lower breakdown voltage (104a) comprising of an inverter (220, 222).

Mentze et al fails to show that the inverter consisting of thick gate oxide devices (GO_2 is the same thing as a thick gate oxide device (Taught in Schoellkopf et al (US 2006/0054952) paragraph [0060])).

However, Chen et al teaches in column 3, lines 27 – 36 that inverter connected to the input signal a utilize thick gate oxide layer to protect to prevent gate oxide breakdown.

Therefore, it would have been obvious for one having ordinary skill in the art, at the time of the invention, to use Chen et al's inverters in place of Mentze et al's inverters with the purpose of preventing gate oxide breakdown.

Claim 10 has similar limitations as to claim 8 above (the thick oxide layer protects the input inverter). Therefore, the claim is rejected for the same reasons.

8. Claims 12 -14 are rejected under 35 U.S.C. 102(b) as being anticipated by Mentze et al (US 7,030,654), as applied to claim 1 above, and in further of Rhee (US 2001/0000949).

As to claims 12 and 13 Mentze et al fails to teach that the voltage driver circuit is part of memory device.

However, Rhee figure 5 teaches in paragraph [0011] that the driver circuit is used in an integrated circuit memory device.

Therefore it would have been obvious to one having ordinary skill in the art, at the time of the invention to use Mentze et al's voltage driver circuit in a integrated circuit memory device for the purpose of accounting for variations in loading of the memory device.

Claim 14 has similar limitations as to claim 13 above (an integrated circuit is a type of a computing system (Wikipedia – Integrated Circuits)). Therefore, the claim is rejected for the same reasons.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRANDON S. COLE whose telephone number is (571)270-5075. The examiner can normally be reached on Mon - Fri 7:30-5:00 EST (Alternate Friday's Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on (571) 272-1988. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kenneth B. Wells/
Primary Examiner
Art Unit 2816

/Brandon S Cole/
Examiner, Art Unit 2816